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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,725	01/15/2002	Scott Wade Powell	7090-I-CIP	8845
22442	7590	04/05/2006	EXAMINER	
SHERIDAN ROSS PC 1560 BROADWAY SUITE 1200 DENVER, CO 80202			ZHENG, LOIS L	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,725

Applicant(s)

POWELL, SCOTT WADE

Examiner

Lois Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-14 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-14 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2 February 2006 has been entered.

Status of Claims

2. Claims 1 and 11 are amended in view of the amendment filed 2 February 2006. Claims 5, 15 and 21-22 are canceled in view of the amendment. Therefore, claims 1-4, 6-14 and 16-20 are currently under examination.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6, 8-14, 16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plantes et al. US 4,329,211(Plantes) in view of Operating Instructions Manual, Vortex™ Water Systems, LLC(Vortex™ Operating Manual) and further in view of Allen US 5,571,399(Allen).

Plantes teaches of an electrocoagulation treatment device for treatment of a high volume flow rate of liquid comprising:

- a housing having an upper portion and a lower portion, said upper portion defining a development chamber and said lower portion defining a reaction chamber (Fig. 2 where area of numeral 26 is the upper portion and numeral 20 area is the lower portion);
- an inlet communicating with said housing at said reaction chamber to allow the flow of liquid into said housing (Fig. 2, numeral 16);
- a secondary separation chamber integral with said housing and placed adjacent said upper portion thereof (Fig. 2, numeral 26 and/or 62);
- an outlet communicating with said secondary separation chamber to allow the flow of liquid out of said housing (Fig. 2, numeral 18);
- a plurality of reaction plates disposed in said housing and extending substantially vertical within said reaction chamber, said plurality of reaction plates being spaced apart from one another creating gaps extending continuously between adjacent reaction plates, said flow of liquid being in a flow direction upward through said gaps between said plurality of reaction plates, said reaction plates being consumed over time due to electrocoagulation (Fig. 2, numeral 20 and cols. 2-4);
- at least two reaction plate tabs integral with selected ones of said plurality of reaction plates, said reaction plate tabs having ends which are isolated from the flow of liquid in said housing (Fig. 2, numeral 22); and

- a source of power providing line voltage to said tabs in order to create an electrical field for the electrocoagulation treatment within said reaction chamber (col. 6, lines 10-19).

However, Plantes does not explicitly teach the claimed less than all of the tabs connected to the DC power source. Plantes also does not teach the amended at least three reaction plate tabs having extensions extending through the lower portion of the housing.

Vortex™ Operating Manual provides proper operating instructions for a Vortex™ water purification system. Vortex™ Operating Manual further discloses a reaction chamber having a housing and a plurality of electrode plates (pages 6, item 10) and the inlet hose to the reaction chamber (page 6, item 9). DC power is used for the Vortex™ water purification system (page 7 paragraph B). Vortex™ Operating Manual further discloses that for high conductivity water, only the first and the last plate in the reaction chamber needs to be connected and for low conductivity water, every plate must be connected. Vortex™ Operating Manual further teaches that one can experiment with the electrical connections for optimal treatment depending on the specific type of the water streams (page 9, Electrical Connection), for example, a water stream with moderate conductivity.

Regarding claims 1, 10-11 and 20, since Plantes teaches using AC power in an electrocoagulator due to high voltage requirement when treating waste water at relatively high volume flow rate, one skilled artisan would have found it obvious to use DC power as taught by the Vortex™ Operating Manual to operate the electrocoagulator

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of Plantes when treating waste water at lower volume flow rates where high voltage is not required. In addition, one of ordinary skill in the art would have found it obvious to experiment and selectively connect the electrode tabs of Plantes, as taught by the Vortex™ Operating Manual, depending on the type of water streams being treated in order to achieve optimal water treatment as taught by the Vortex™ Operating Manual.

Allen teaches reaction plate tabs extending through the lower portion of the housing(Figs. 2 and 4, numerals 21-22 and 16-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Plantes in view of the Vortex™ Operating Manual to include tab extensions extending through the lower portion of the housing as taught by Allen(Figs 2 and 4, numerals 16-17 and 21-22) in order to increase versatility in tab connection thereby putting electrical connections out of harms way from operators of the apparatus as taught by Allen(see paragraph 8 of the previous Non-Final Office Action mailed 22 January 1004).

With respect to the claimed feature of "at least three reaction plate tabs include corresponding tab extensions that extend through the low portion of the housing" as recited in instant claims 1 and 11, since Vortex™ Operating Manual teaches experimenting with the electrical connections for optimal treatment depending on specific water streams and Allen teaches extending tabs through the lower portion of the housing for increased versatility, one skilled artisan would have found the claimed at least three reaction plate tab extensions through the lower portion of the housing within the scope of the teachings of Plantes in view of Vortex™ Operating Manual and Allen.

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With respect to the amended features of said reaction plates “being removed for replacement due to being consumed” and “said reaction plate tabs being removed with said reaction plates”, the examiner does not consider that the amended features lend patentability to the instant apparatus claims since the amended features are directed to how the claimed apparatus is being operated(i.e. process limitation in apparatus claims). As stated in MPEP 2114 [R-1], it is well settled that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus as long as the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

With respect to the amended feature of the reaction tabs formed integrally with the reaction plates, *Plantes* further teaches that the plate tabs are mounted on the reaction plates(col. 6 lines 10-13). Therefore, based on the broadest reasonable interpretation, the reaction tabs as taught by *Plate* in view of *Vortex*TM Operating Manual and *Allen* is formed integrally with the reaction plates. Even if *Plate* in view of *Vortex*TM Operating Manual and *Allen* do not explicitly teach the claimed reaction tabs formed integrally with the reaction plates, one of ordinary skill in the art would have found it obvious to make reaction tabs and reaction plates integral since it is well settled that the use of a one piece construction instead of the structure disclosed in the prior art would be merely a matter of obvious engineering choice. *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965). See MPEP 2144.04(V).

Regarding claims 2 and 12, Plantes also teaches that the development chamber is further defined as an open area above said reaction chamber within said housing(Fig. 2 where area of numeral 26 is the upper portion).

Regarding claims 3 and 13, Plantes further teaches that a weir integral with said housing and interconnecting said secondary separation chamber and said development chamber (Fig. 2, numeral 26).

Regarding claims 4 and 14, Plantes further teaches that a top cover is placed over said housing (Fig. 2, shown as cover above numeral 22).

Regarding claims 6 and 16, Plantes further teaches a vacuum tube extending through said secondary separation chamber, said vacuum tube connected to a source of vacuum for evacuating contaminants within said housing (col. 4, lines 8-19).

Regarding claims 8 and 18, Plantes further teaches that said housing further includes a pair of opposing ledges formed in the lower portion thereof, said pair of ledges for supporting lower edges of said plurality of reaction plates (Fig. 4, numerals 24 and 26).

Regarding claims 9 and 19, Plantes further teaches of a riser tube communicating with the outlet and said riser tube extending upwards from a lower surface of said secondary separation chamber (Figs. 1 & 2, numeral 18).

5. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plantes in view of Vortex™ Operating Manual and Allen, and further in view of Moeglich US 4,176,038 (Moeglich).

The teachings of Plantes in view of Vortex™ Operating Manual and Allen are discussed in paragraph 4 above. However, Plantes in view of Vortex™ Operating Manual and Allen do not specifically teach the claimed airlet attached to the lower portion to introduce air within said liquid stream thereby increasing turbulence.

Moeglich teaches a water purification apparatus with processing water augmented by air when the processing water is injected into the lower portion of the processing vessel(col. 2 lines 16-39 and col. 4 lines 24-45).

Therefore, it would have been obvious to one of ordinary skill in the art to have introduced air into the water inlet stream of the processing apparatus of Plantes in view of Vortex™ Operating Manual and Allen as taught by Moeglich in order to eliminate the likelihood of bridging and short circuits between the electrodes, and to increase the efficiency of the process as taught by Moeglich(col. 2 lines 20-27).

Response to Arguments

6. Applicant's arguments filed 2 February 2006 have been fully considered but they are not persuasive.

In the remarks, applicant argues that there is no motivation to combine the teachings of Vortex™ Operating Manual with Plante other than hindsight since Plante teaches applying AC power source for high volume flow rate which cannot be substituted with a DC powers without an astounding amount of amperage.

The examiner respectfully disagrees. The high volume flow rate as taught by Plantes is related to the manner in which the prior art apparatus is operated. One of ordinary skill in the art would have realized that the apparatus of Plantes could have

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been operated at a lower volume flow rate and still perform the same electrocoagulation reaction. When operated at a lower volume flow rate, one of ordinary skill in the art would have found it obvious to have used a DC power source in the apparatus of Plantes as suggested by the Vortex™ Operating Manual.

Regarding applicant's arguments on the Allen reference, the examiner does not find applicant's arguments persuasive since Allen is incorporated into the rejection grounds for its teaching of extending the reaction tabs through the lower portion of the housing in order to increase versatility in tab connection thereby putting electrical connections out of harms way from operators. Therefore, it is irrelevant whether the reaction plates of Allen are consumable or whether the reaction plates of Allen are removable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700